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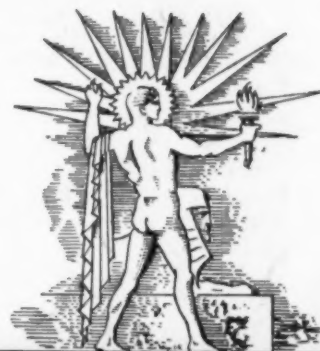
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SCIENCE NEWS LETTER

THE WEEKLY SUMMARY OF CURRENT SCIENCE



November 11, 1939

Packing for the Antarctic

See Page 310

A SCIENCE SERVICE PUBLICATION

Do You Know?

A stainless steel bathtub—believed the first in this country—solved a plumbing problem recently, when a light weight tub had to be provided for a remodeled home.

About 300 American doctors attended a "discussion of public health in the Soviet Union" in the Soviet pavilion at the New York World's Fair in September.

Yellowstone Park rangers figure that every time Old Faithful Geyser spouts in daylight hours during the tourist season, an average of 100 cameras are turned on it.

Canada's reindeer reserve is about 200 miles north of the Arctic Circle; yet stamina of the young animals is such that usually 85 to 90 per cent survive the intense cold.

To sneeze-proof homes of hay-fever sufferers, University of Texas engineers have invented, and will endeavor to patent, a filtering device using a fan, heater, and filters.

A model of Solomon's Temple in Jerusalem, exhibited at the New York World's Fair, was constructed by a Jewish Rabbi from close study of Bible documents and Jewish tradition.

A Field Museum botanist, when asked how long a pressed and dried plant will last, points out that moderately pressed garlands from 4,000-year-old Egyptian tombs are discolored but the form and texture are well preserved.

QUESTIONS DISCUSSED IN THIS ISSUE

Most articles which appear in SCIENCE NEWS LETTER are based on communications to Science Service, or on papers before meetings. Where published sources are used they are referred to in the article.

ENTOMOLOGY

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METEOROLOGY

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MINING

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How do business men differ with social scientists on ways of keeping America out of war? p. 317.

Why do psychologists not teach the "psychology of workers"? p. 313.

PUBLIC HEALTH

What proportion of the public should be served by the health departments? p. 319.

RADIO

How can airplane passengers watch themselves in flight? p. 318.

In 1609, Captain John Smith wrote a good description of poison ivy.

Alaska is to have a fully-equipped laboratory for research on its fishery products.

Mississippi has joined the oil states, now that a wildcat well near Yazoo City is producing commercially.

Government scientists are developing what is expected to be ideal fishing ground in the historic Chesapeake and Ohio Canal.

The population of Britain in Roman days has been estimated at about a million.

There are now 436 seeing-eye dogs in the United States, trained to guide the blind.

Poison ivy, generally supposed to have a southern limit in Mexico, has been found in Guatemala.

Kansas City allows automobiles to speed up from the 25 mile city limit to 35 on arterial streets in the daytime—but not at night.

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METALLURGY

Lead, Oxygen, Silver Make Better, Workable Steel

New Processes Just Announced Make Vital Metal More Easily Machined; Prevent Corrosion in Sea Water

A NEW way to prevent corrosion of stainless steel in salt water, long an Achilles heel of an otherwise excellent structural material, was described to the American Institute of Mining and Metallurgical Engineers in Chicago.

Dr. H. H. Uhlig, research associate of Massachusetts Institute of Technology, described long continued research to seek the causes and the prevention of stainless steel's corrosion in salt water.

It has been this handicap which has, in the past, led the U. S. Navy to regard, with only mild approval, the use of stainless steel on naval vessels where it is subjected to sea water.

Dr Uhlig's research, supported by the Chemical Foundation grants, discloses that if stainless steels are exposed to air for some hours, or if they receive treatment by an oxidizing solution directly after the pickling operation, they will be corrosion resistant in salt water.

Dr. Uhlig has worked in a cooperative research at M. I. T. which has resulted in a number of important patents on ways of increasing the ability of stainless steels to resist corrosion. The scientists who have taken part in this research include John C. Wulff, Albert L. Kaye, Prof. Robert S. Williams.

Steel Jewelry

Among the M. I. T. discoveries is the use of small amounts of the chemical that produces smoke for warfare, titanium tetrachloride, to give stainless steel a lustrous and extra smooth new surface which is especially resistant to pit corrosion. This surface has such luster that it can actually be fabricated into beautiful jewelry, rivaling precious metals in appearance.

They have also found that minute amounts of silver, as little as 0.42%, can cut down the salt water corrosion of stainless steels more than 80%. The silver, moreover, greatly improves the rolling and machining properties of the metal.

Science News Letter, November 11, 1939

"LEADED" steel is the newest trick of industry to increase the machinability of its product and thus bring lower production costs. But not to be overlooked in the gathering wartime tempo of the nation's industry is the thought that "lead" steel can increase the production of machine parts that are used in a thousand ways in everything from automobiles and airplanes to tanks and tractors.

At the meeting of the American Society for Metals in Chicago, "lead" steel passed its strength and performance tests, it was disclosed in the report of metallurgists F. J. Robbins and G. R. Caskey of Bliss and Laughlin, Inc.

What is "lead" steel? Merely the addition of small amounts of this soft, malleable metal to batches of steel. "Leading" turns these steels into stocks that can be cut faster on the lathes, gearing, cutting and milling machines of industry.

The result is less wear in cutting tools and dies, faster production and fewer breakdowns in streamlined mass-production operations. All these factors in peacetime mean lower costs that can be translated into a cheaper product, or into increased dividends as the manufacturer chooses. In war it means more machine parts for a war-gear industry.

The question mark behind lead steel was whether it had the strength required for its ultimate job. Did not the addition of lead weaken the steel? Metallurgists Robbins and Caskey show that the strength remains unchanged while the machining properties are increased.

Sample figures on typical steel (S.A.E. X 1015), without leading, showed a tensile strength of 109,000 pounds per square inch. With the same steel leaded the tensile strength rose to 119,800 pounds per square inch.

For another steel (S.A.E. 1115) the unleaded form had a tensile strength of 66,300 per square inch while the addition of lead changed the tensile strength to only 64,250 pounds per square inch.

Here is what leaded steels mean in dollars and cents. In making pinion



NO APOLLO

No Apollo with classic profile is this sharp-nosed Greek face made of terracotta, now in the Metropolitan Museum of Art. It looks more Syrian, at first glance. Pronounced something of a puzzle, the head is tentatively dated about the end of the eighth century B. C. or dawn of the seventh, and it apparently shows Greek art in an early experimental stage. The head was thrown on a potter's wheel like a vase, and chin and cheeks were pushed out. The big nose was an extra chunk of clay, the mouth skimpily cut with a tool. Separate rolls of clay made eyelids, ears, long hair, fillet and necklace, and the cheeks were painted brownish red, hair black. It is almost life-size, and once was joined to a body.

gears from leaded steel the "feed" of the stock could be increased from 130 to 160 feet per minute. The time of fabrication per part dropped from 22 seconds to 17 seconds. The cost of material for a run of 6,000 parts dropped \$11. Because the machine ran less time for a run of 6,000 parts the labor costs and machine overhead were lower. Total saving for a 6,000 part run was \$27.46 in an outlay of \$534.44 previously spent.

This is a saving of 5.1% in a day and age when 4% return on an investment looks mighty good.

All the bugs are by no means removed from leaded steel. Particularly is there a job to do to obtain a uniform distribution of the lead throughout the steel. In some cases it now has a tendency to concentrate in spots that, under piercing X-ray examination show up like dense dark spots in the otherwise uniform gray of steel in X-ray pictures.

That is a problem for the steel men, however. The current report simply removes one of the major objections (lack of strength) raised against this newest, and valuable, addition to the great family of steel.

Science News Letter, November 11, 1939

PHYSICS—PHYSIOLOGY

Voice of Adolescent Boys Drops or Rises an Octave

Acoustical Society of America Hears Reports on Human Voice and How to Amplify It for Audiences

THE VOICE breaks of adolescent boys that commonly put a high-pitched squeak into the otherwise low but immature adult voice are now being studied, it was reported to the meeting of the Acoustical Society of America at Iowa City by Grant Fairbanks of the State University of Iowa.

With scientific apparatus it is found that almost as many voice breaks occur at 10 years of age as at the age of 14. Very frequently the voice will break downward although upward breaks are more frequent. The average break represents a change of pitch of 8 tones, or one octave.

Other studies at the University described by Mr. Fairbanks showed that trained actors can simulate the emotion of contempt with a pitch range of 10.5 tones. Anger was simulated with a range of 10.3 and required a very rapid change of pitch.

The highest average pitch and the greatest range of tone (11.2) was required to express fear. Grief needed only a tonal range of 9 and indifference had the lowest range of all, only 7.8 tones.

Photograph Vocal Cords

WITH high speed motion picture photography Dr. John C. Steinberg of the Bell Telephone Laboratories showed movies of the vibrations in the

human vocal cords taken at the rate of 4,000 pictures a second.

When projected at the normal speed of only 16 a second speed reduction ratio of the pictures was 250 to one so that when the cords were vibrating 250 times a second (essentially the tone of middle C—256) the cords in the movie vibrated only once a second.

For low-pitched sounds the cords appeared relaxed completely. As the tension in the vocal cords increased the pitch went up.

These vibrations of the cords, emphasized Dr. Steinberg, do not possess the distinguishing characteristics of different speech sounds. The latter characteristics are produced by the passage of the sound waves through the throat, nose and mouth cavities.

Science News Letter, November 11, 1939

Amplifiers Aid Theater

THE USE of microphones, amplifiers and other acoustical apparatus is now bringing to the theater the whole gamut of sounds which the human ear can hear, Harold Burris-Meyer of Stevens Institute of Technology told the meeting.

While formerly it was possible to have complete control only over the lighting of the stage, and the actors had not only to interpret their parts but to overcome bad architectural acoustics, is now pos-

sible to achieve added dramatic value through sounds.

"It is possible to use sound," explained Mr. Burris-Meyer, "as an arbitrary independent means for stimulating predictable involuntary audience reaction; to engender by auditory means that emotional flux which will make it easy for the audience to suspend disbelief, to laugh at, weep for, or believe in something which would have seemed absurd when first the curtain went up."

Science News Letter, November 11, 1939

MINING

Japan Plans Exploitation Of Iron and Coal Deposits

JAPAN plans the exploitation of immense iron ore and coal deposits in Manchukuo, in the still wild and inaccessible Tungpientao district near the Korean boundary. The deposits of high-grade iron ore are estimated at 100,000,000 metric tons.

The Tungpientao Development Company has a project which calls for the production, by the end of 1941, of 1,300,000 metric tons of iron ore, 1,300,000 metric tons of coal, and the construction of an iron and steel works with a capacity of 500,000 tons of pig iron and 100,000 tons of steel. A railroad into the district is now under construction.

John S. Stewart, discussing the project (*Far Eastern Survey*, Oct. 25), remarks:

"Whether the Japanese plan of a new heavy industry zone in a hitherto undeveloped area will be realized, depends, of course, on several vital factors. The steps outlined above merely break the ice. Assuming that the discoveries can be substantiated by later findings, the real test will come in raising the capital and equipment to get under way on a large scale."

Science News Letter, November 11, 1939



PHYSICS—PHYSIOLOGY

Living "Glass" Described At Temperature Symposium

Athletes During Severe Exercise Have Fever Body Temperatures; Dogs Are Trained to Withstand Cold

BY TURNING their cells into a kind of living "glass" some microorganisms are able to withstand immersion into liquid air at temperatures of 190 degrees below zero Centigrade, it was reported to the symposium on temperature sponsored by the American Institute of Physics in New York.

Prof. Basil J. Luyet, St. Louis University's professor of biochemistry, told the scientists that matter can exist in four physical states: as a gas, as a liquid, as a crystal and as a glass.

Death by freezing comes because the temperature is lowered slowly. If an organism can be dipped into liquid air and pass on to the so-called vitreous state, some living tissues can be returned to a degree of vitality by quick warming to make them pass again through the danger stage of crystallization.

Prof. Luyet reported that he, and his collaborators, had used this rapid cooling to chill tissues from the epidermal cells of plants, moss leaves, frog's spermatozoa, isolated muscle fibers and myxamoebae. All these regained vitality on rewarming.

"Other protozoa or tissues experimented upon did not survive," Prof. Luyet said. "One of the reasons for the lower resistance of the latter seems to be their too-high water content and the impossibility of sufficiently dehydrating them."

"These observations and those of other investigators . . . favor the theory that

the structure required for vital activities is such that it is not destroyed by a lowering of molecular motion while it is destroyed by the withdrawal of some water molecules as when crystallization takes place."

Science News Letter, November 11, 1939

Athletes at Fever Heat

ATHLETES in severe muscular exercise can show body temperatures that normally would mean high fevers, Dr. Eugene F. DuBois of the Russell Sage Institute of Pathology, Cornell University Medical School, told the symposium.

Dr. DuBois, reviewing studies of the body's temperature, showed that the familiar 98.6 degrees Fahrenheit the clinical thermometer registers normally, is only one single spot between internal temperature and skin temperatures of 93.2 and lower.

In severe exercise the temperature may run up to 104 degrees Fahrenheit.

Just as the earth has broad zones of temperature so, too, does the body have its temperature levels, or zones. The torrid zone in man might be classed as that with temperatures of more than 105.2 degrees F. which can only be obtained by artificial fevers or when the body's temperature-regulating mechanism fails.

Just below this, in what might be called the semi-tropics, is the familiar

"fever" zone that is higher in temperature than normal and which comes from illness. With fever the skin temperature is warm. Here, too, come the higher temperatures of severe exercise which are accompanied, however, by cool skin.

The body's normal temperature zone, corresponding to the temperate zone on the earth, is fairly wide.

Below it come those body temperatures which are restored to normal values by shivering.

And finally, analogous to the polar regions on earth, is the body's zone of semi-hibernation where temperature regulation fails.

Science News Letter, November 11, 1939

Trained Dogs Endure Cold

FROM Harvard's four-man research team of the Fatigue Laboratory—Drs. M. Nielsen, W. H. Forbes, J. W. Wilson and D. B. Dill—came reports of Harvard's four trained dogs which will lie quietly on a net in a cold room at temperatures of from 32 to 53 degrees Fahrenheit and wear oxygen masks.

Exact physiological studies were made of their body activity as scientists tested skin temperatures, respiratory rate, pulse rate and did blood tests on them.

Three of the four dogs withstood the chilling tests well. They lay quietly, though not narcotized, in a semi-conscious condition most of the time.

At these low temperatures the dogs shivered moderately while breathing room air and thus increased their heat

VIBRATING VOCAL CORDS

Super-fast photography made possible the series of pictures taken at 4,000 a second from which these six representative views were selected. In them, the cords were vibrating at about 120 cycles in a high frequency note.



production and maintained their body temperature.

When the dogs breathed gas mixtures with lowered oxygen content through their masks the shivering soon stopped and their metabolism returned to the basal level and the body temperature fell about two degrees Centigrade per hour. Greatest total drop in temperature was six degrees Centigrade.

The temperature fell gradually, reported the Harvard scientists, until the dogs were switched over to breathing the air in the cold room. Then the body's metabolism suddenly increased four times and within a half hour the body temperature was back to normal.

"The ability of the dog to withstand low oxygen depends more on the toughness of his central nervous system than on an unusual ability to take oxygen in the lungs," conclude the scientists.

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Novel Oil Prospecting

A METHOD of oil prospecting by measuring temperatures in the earth at depths of 100 to 200 feet was described by Melvin C. Terry.

It is not necessary to take the temperature measurements at extreme depths because the intrusion of high conductivity materials will disturb the pattern of normal temperature gradients.

Working over the ground of producing Texas oil fields at Hastings and Friendswood, it was found that the line of constant temperature at 23 degrees Centigrade ran about 100 feet higher over the oil salt domes than it did in the region between them.

Science News Letter, November 11, 1939

New Theory on "Hot Spots"

THE TRADITIONAL explanation of the skin's sensitivity to heat and cold was discounted by new findings reported by Lehigh University's Dr. William Leroy Jenkins, instructor in psychology.

The thought that temperature sensitivity of the skin was concentrated in small warm and cold spot receptors arose from the discovery that the locations of these spots could be mapped with a small stimulator.

Dr. Jenkins has carried forward the mapping technique and by the process of seriatim, or repeated mapping, has found that the single warm and cold spots do not exist.

"Seriatim mapping," Dr. Jenkins declared, "reveals hills and valleys of sensitivity. Warm and cold spots are found

only in clusters and mapping with smaller and smaller sizes does not resolve these clusters into discrete units; they simply disintegrate without being resolved."

As a new and better way to explain the skin's temperature sensitivity, Dr. Jenkins proposes a "concentration hypothesis" which suggests that the sensitivity depends primarily upon the concentration of the receptors. Where the receptors are highly concentrated the skin's sensitivity is high. Where they are sparse, the sensitivity is low. According to this view, the traditional warm and cold spots are merely peaks of sensitivity and do not mark the locus of individual receptors.

Science News Letter, November 11, 1939

PUBLIC HEALTH—ECONOMICS

Drought in Far East Creates Serious Food Problems

DROUGHT in Japan and Korea, severely curtailing production of vegetables and rice, has created serious food problems, reports Kurt Bloch, writing in the *Far Eastern Survey* (Oct. 25). The drought has also resulted in severe damage to the fresh-water fisheries, while the production of sea fisheries has been cut

down by restriction on gasoline sales to the fishermen, forcing them to give up use of motor power for slower means.

In the meantime, the occupied portions of China have begun to present serious competition for existing food supplies. North China has always been a heavy wheat-consuming country, but before the outbreak of hostilities had got on a self-sustaining basis so far as this grain was concerned. Now North China imports 800,000 tons of wheat in a year—which means a staggering load on "yen bloc" finances.

Science News Letter, November 11, 1939

GENERAL SCIENCE

Scientists Shop and Pack For Year in Antarctic

See Front Cover

HOUSEWIVES will appreciate the problem of the U. S. Antarctic Expedition setting sail for the other end of the earth: Shopping for supplies for more than a year for two little communities, two base camps, plus exploring parties on the trail—1200 tons of everything well-ordered pioneering households will need, including the houses.

All are boxed securely against Antarctic cold and packaged so strong men can unload under adverse conditions.



COAL, TANKS AND MEN FOR EXPLORATION

The two leaders of the base camps to be laid down in Antarctica by Uncle Sam, Richard B. Black, East Base commander (left) and Dr. Paul A. Siple, West Base commander, inspect the converted Army tanks that will be used as "iron dogs" for snow travel. In the background, the "North Star," being loaded at Boston Army Base. Piles of bagged coal at left.



STEVEDORE-SCIENTISTS

Members of the U. S. Antarctic Expedition led by Admiral Byrd, pause for a moment during the loading of the U. S. Coast Guard vessel "North Star" at Boston Army Base. Left to right: Murray A. Wiener, physicist; Dr. R. G. Frazer, physician of the West Base camp to be established in Antarctica; Malcolm Davis, ornithologist of the National Zoological Park, Washington, D. C., who will capture penguins and seals; and Ennis C. Helm, official photographer for Admiral Byrd.

They are stowed in the little U. S. Coast Guard ship, *North Star*, an Arctic veteran. Each item is so packaged that it can be found and unshipped in orderly and methodical manner when and where needed.

Each box, each package is labeled with a large letter in red or green paint—F for food, B for bedding, etc. with red

meaning that west base is the destination, green, east base. Not all rude discomforts for these pioneers, a stack of deluxe mattresses with innersprings claiming service to beauty are among the cargo in Army Base's warehouses at Boston, stevedored upon the staunch *North Star* by scientists and crew alike.

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MILITARY SCIENCE

\$100,000,000 Spent for ARP By England Since 1938 Crisis

Aimed at Relative Protection to Greatest Number Rather Than Complete Protection for Only a Few

SINCE September, 1938, when the first real war scares came, Great Britain has spent \$100,000,000 for its Air Raid Precautions (ARP). Out of this hundred million has come gas masks for the whole civilian population and tested plans for the construction of new air-raid shelters and the reconstruction of existing buildings for the same purpose.

What a city like London will be like

if German bombers are turned from truly military objectives to unrestricted bombardment of the city can be pictured from the authoritative report just completed by Maj. W. J. Quentin, Military Intelligence Reserve, U. S. Army. A civil engineer, Major Quentin has abstracted his report for Civil Engineering.

ARP, says Major Quentin, has been much criticized for its failure to develop quickly more bomb-proof shelters. Rath-

er, and rightly, it has aimed at giving relative protection to the greatest number of people rather than complete protection to only a few. It is estimated, Major Quentin says, that despite the evacuation of 1,500,000 people from London some 6,000,000 persons will still remain to carry on the city's jobs.

For strong buildings the ARP urges 4½-inch-thick slabs of concrete on the roof to check small incendiary bombs of the kind that turned Warsaw into a shambles. All other buildings with flat roofs will have them covered with three inches of sand to ward off fire risk. The top floors, it is urged too, will be cleared of all combustible materials and similarly sanded.

New buildings going up have new "demolition slabs" placed near the third floor to make heavier bombs burst there and before they reach basement air-raid shelters.

Guiding principle of new construction is that used in earthquake-proof buildings where exterior walls serve in no way in the load-bearing.

Against very heavy bombs the ARP realizes there can be little protection on direct hits. What they are aiming for is protection against the blasts and splinters from a 500-pound bomb bursting 50 feet away. It has been shown that it takes sand bags two feet thick to accomplish this.

Science News Letter, November 11, 1939

GENERAL SCIENCE

Scientists Arranging For Interchange of Journals

DETERMINED to keep the streams of knowledge flowing between America and the nations at war, American scientists and scholars are checking carefully to be sure that the interchange of journals of research interest continues.

Whenever an important journal is not received, the American Documentation Institute in Washington is to be notified. This agency, created by scientific and scholarly organizations to aid in handling joint problems concerning the literature of intellectual activities, will follow the matter with the State Department's aid, surmounting so far as possible such obstacles as interrupted transportation, embargoes and censorship.

Declaration: "The principle should be established, if possible, that the materials of research having no relation to war shall continue to pass freely, regardless of the countries of origin or destination."

Science News Letter, November 11, 1939

PHYSICS-MEDICINE

**Brother Research Team
Back Together Again**

THE last passenger off the sinking *Athenia* into a life boat was Dr. John Lawrence, the physician-brother of University of California's Prof. Ernest O. Lawrence, inventor of the atom-smashing cyclotron. Brother John, M.D., reported to the war-dispersed British Association for the Advancement of Science at Dundee, his pioneering experimenting upon attacking cancer with neutron rays and other biological effects of the most intense man-made radiation. While Brother Ernest worried mightily, Brother John was picked up by a British destroyer and was so long in getting back to England that his name never appeared on official survivor lists. But the brothers are now working together again.

Science News Letter, November 11, 1939

PSYCHOLOGY

**Skill of Plastic Surgeon
Heals Personality, Too**

A THOUSAND men without faces, victims of the last World War, gave rise to the science and art of plastic surgery. First concern of the few great surgeons, who met this emergency by developing new skills, was restoration of function.

These men without faces could not chew. They could not swallow. They could not speak. Other men could not bring themselves to look upon such a horrible result of "man's inhumanity to man."

It was necessary to give the victims jaw bones, teeth, noses, throats, skin. It was a work of mercy to add artificial eyes, beards, pleasing contours. Imagination came into use, for mothers, in many cases, could not even supply photographs.

Psychological values of the repair work received scant attention at that time. Yet the healing of the spirit by the plastic surgeon is as remarkable as the wonders he performs on external appearance.

The least vain among humans has a natural horror of looking repulsive to his fellows. A physical deformity is a great handicap in keeping a job, winning a sweetheart, making friends, finding happiness. Warped personalities naturally result from twisted bodies.

Dr. Henry J. Schireson, plastic surgeon of Philadelphia, tells of the great joy expressed by his patients who had

been restored to natural appearance or given new beauty in the surgery. One of the most appreciative was a nun, victim of a Chinese plague, who asked his aid because she "frightened little children."

The present war will bring its ghastly ranks of mutilated victims.

But war is not the only deformer of men. Americans, Dr. Schireson said, bring the disfiguring lines of age into their faces prematurely through an extreme intensity of living, through exciting sports. They are mutilated by the automobile, the airplane, the parachute, burns and falls.

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CHEMISTRY

**Wool and Plastics Can Be
Made of Zein from Corn**

AMERICAN corn fields potentially can produce fibers with wool-like properties, it appears from research reported by L. C. Swallen, chemist of the Corn Products Refining Co.

From a bushel of corn a pound of zein, a byproduct of corn processing, can be obtained. Zein is a protein with uses, in many cases, like those of casein derived from cow's milk. Zein can be made into plastics, into waterproof wrappers, quick drying printing inks and into films and fibers.

Science News Letter, November 11, 1939

ENGINEERING

**25,000,000 Candlepower
Robot Searchlight Developed**

A NEW rival for the time-honored carbon-arc searchlights has appeared in a 25,000,000 candlepower searchlight, using three tiny water-cooled mercury arcs, which has been developed by the General Electric Company.

While present-day searchlights need an attendant to adjust the carbons for best illumination, the new searchlight does not wear out, needs no adjustment and is designed for lights in inaccessible places.

Ninety gallons of water an hour are pumped through the cooling containers of the mercury arcs and then passed to an automobile-type radiator where the fluid is cooled for recirculation.

Though more convenient, the new searchlight is still below the present high-intensity searchlights in beam candlepower and effectiveness, admit G.E. engineers.

Science News Letter, November 11, 1939

IN SCIENCE

PUBLIC HEALTH

**Vitamin B₂ Used on Rats
As Weapon Against Cooties**

SOLDIERS in the present war may be spared at least one major discomfort that plagued their older brothers in 1914-1918, if the results obtained with vitamin B₂ on rats in the laboratories of Nobelist A. Szent-Gyorgyi at Budapest, Hungary, can be duplicated in human beings. He gave heavy feedings of the vitamin to rats badly infested with lice. The insects promptly left the rats.

Science News Letter, November 11, 1939

ENTOMOLOGY

**Mosquito Eggs Apparently
Survive Without Water**

MOSQUITO eggs apparently are able to survive through the tropical dry season without water, Drs. Wm. S. Stone and Francois H. K. Reynolds of the Army Medical Research Board, with headquarters at Ancon, Canal Zone, report. (*Science*, Oct. 20.)

Drs. Stone and Reynolds had noticed very sudden increases in mosquito numbers a week or ten days after the onset of the rainy season. Egg-producing capacities of the few surviving mosquitoes did not seem to account for this.

They studied the last eggs laid by mosquitoes before the coming of the dry season, and found them larger than average, and much slower to hatch. This hinted at an adaptation to secure survival through a period of hard times.

The two doctors then secured earth and debris from dried-out seeps that are pools during the wet season. They covered these with water in sterile screened containers, and in two days had numbers of mosquito larvae belonging to several different species.

Drs. Stone and Reynolds admit that their experiments up to the present are not absolutely conclusive, but consider that they at least suggest a mechanism of survival for mosquitoes through dry seasons. They state that they will make further careful observations and tests prior to and during the dry season of 1940.

Science News Letter, November 11, 1939

ICE FIELDS

PSYCHOLOGY

Workers' Psychology Not Different From Others

WORKERS have no special emotions, desires, or different "psychology," Dr. Franklin Fearing of University of California at Los Angeles said in a recent symposium on industrial conflict.

"While it does not appear that professional psychologists have encouraged this view," he said, "yet there are books on workers' emotions, workers' attitudes and other special psychological characteristics, which at least implicitly convey the idea that, in some way, there is a peculiar worker psychology which is a cause of industrial unrest." The wants of workers, he indicated, are shared by all.

Another misconception, based on scientifically discredited but recently revived notions of "mob psychology," is the idea that groups are dangerous and debasing to the individual. Research by psychologists has demonstrated the contrary—decisions of a group, or problem solutions worked out by cooperating minds, are in general much more sound than those of the individual.

The word "conflict" itself may be misleading because psychiatric usage has given it a connotation of emotional instability or maladjustment.

Actually industrial conflict, Dr. Fearing declared, is a natural social phenomenon and may be creative by acting as a step toward the development of a new basis of understanding.

Science News Letter, November 11, 1939

PHYSICS

Candy, Cold as Liquid Air, Emits Flash of Light Rays

ORDINARY ice and crystalline candy wafers emit a faint glow of light called triboluminescence, at liquid air temperatures, it was reported to the Optical Society of America at Lake Placid by Dr. Frances G. Wick, Vassar College physicist.

The new report confirms and extends prior work described recently by Prof. E. Newton Harvey of Princeton University, who showed that grinding such

candy wafers in a chemical mortar produced similar light effects. Dr. Wick has found also that ice, cooled to liquid air temperature, emits light when ground.

The emission of the light, in part, depends on the flavor of the candy, wintergreen being especially brilliant. Other flavoring oils studied were bergamot, lemon, lavender and peppermint.

By first irradiating the candies with the rays from an iron arc (ultraviolet radiation) the light emitted could be increased. It is probable that the effect is caused by the cracking of the candies in the severe chilling and consequent electric sparks produced. This excited luminescence in the flavoring oil.

Expensive equipment is not needed to demonstrate triboluminescence. Prof. Harvey has found that when adhesive tape or black electrician's tape is stripped off its roll in a dark room a faint emission of light can be seen.

Science News Letter, November 11, 1939

MEDICINE

Anti-Measles Vaccine Is Goal of New Virus Studies

AN ANTI-MEASLES vaccine is the goal of investigations just reported by Drs. Geoffrey Rake and Morris F. Shaffer, of the Squibb Institute for Medical Research (*Nature*).

The virus which causes measles can be cultivated in the fertile hen's egg, they announced. Chick embryos or fertile hen's eggs have been used for making smallpox vaccine and are being used in efforts to develop vaccines for protection against other human ailments, such as influenza.

In order to find out what happens to the measles virus after it has been grown in the chick embryos, monkeys have been inoculated. Typical measles developed in monkeys inoculated with material originally from measles patients which subsequently had been passed from egg to egg five times, but after many such transfers the monkeys developed only a rash without other symptoms.

This could mean that the measles virus had been changed in some way or it could mean that it was gradually disappearing. Which of these is true, the New Brunswick group of workers want to determine. In association with Drs. Joseph Stokes, Jr., and Gerald O'Neil, of the Children's Hospital in Philadelphia, cautious studies in children have been initiated.

Science News Letter, November 11, 1939

METEOROLOGY

Data of Decades Reveal Tides in the Atmosphere

BY "HARVESTING" 1,200 years of observations on barometric pressure with giant calculating machines, scientists now have clear evidence that vast tides exist in the earth's atmosphere just as they do in the earth's oceans.

These air tides, caused by the gravitational pull of the moon, rise and fall twice daily, Prof. S. Chapman of London's Imperial College of Science and Technology, said in his presidential address as president of the International Association of Meteorology.

"The enormous stores of barometric data, accumulated over the world for many decades, have been used to determine the minute lunar air-tide, by a process which may be compared with the extraction of rare metal from a great mass of crude ore," Prof. Chapman declared.

Over 5,000,000 observations are available for study and correlation which in the aggregate total more than 1,200 years of observing if they had been carried out at one weather station. Actually the enormous store of records was made during the 19th century at many stations.

The first evidence of lunar air tides came from observations in the tropics where the layer of air over the earth is thicker due to the centrifugal force created by the whirling earth. Back in 1918 the tides were known only at three tropical stations. Today more than 54 stations, throughout the world, have reliable results.

Prof. Chapman credited Prof. Julius Bartels of Potsdam, Germany, with major contributions to this study by improving techniques.

The average lunar tide is direct, appearing as a high tide when the moon is on or near the meridian.

The magnitude of the lunar tides is very small, amounting in latitudes of England and Germany only to the weight of two feet of air at normal density.

One of the earliest indications of the effect of lunar tides, Prof. Chapman said, was the report of Capt. Lefroy, who in 1842 as director of the Colonial Observatory on the island of St. Helena, found that his bihourly readings of the barometer showed cyclic changes with the moon's position on the basis of 17 months of observation.

Science News Letter, November 11, 1939

MEDICINE

Medicine Goes to War

Europe's Conflict Finds Physicians and Surgeons Ready With Mighty Offensive Against Disease and Death

By JANE STAFFORD

THE WAR that is raging in Europe finds the "Men in White" probably better prepared than ever before to fight war-born pestilence and heal war-shattered bodies. From field and base hospitals during the last World War, from research laboratories and peace-time practice since 1918, have come many advances in surgical technic and in disease-fighting.

The World War that ended in 1918 was the first major war in which there were not very many more men killed by disease than by bullets. The picture, from this point of view, seems more promising today even than in the dark days before 1918.

Before then, one of the accompanying hazards of war were the plagues like typhoid fever and dysentery, which spread via contaminated food and drinking water. Typhoid fever can now be prevented by a sort of vaccination procedure. Doughboys of 1917 remember the "shots" which laid some of them up with sore arms and even a bout of fever for a few days, but which prevented the epidemics that took frightful toll of American troops in the Spanish-American War. The men in the laboratories have been working on anti-typhoid fever vaccination since 1918. For those who have once had the anti-typhoid "shots," there is a chance that revaccination—the protection does not last indefinitely but must be repeated—will be given in one dose with no sore arms or disability.

Sanitation Improved

Camp sanitation, moreover, has progressed to the point where the dysenteries can be, and in well-regulated armies are, practically eliminated.

Influenza and typhus fever were probably the greatest plagues of the World War. Scientists have never stopped fighting the war against 'flu. They have discovered that the cause of the disease is a virus, but attempts to prevent the spread of the virus or to develop a vaccine against it have not met with success so far. Only a few weeks ago Dr. Thomas Rivers, of the Rocke-

efeller Institute for Medical Research in New York City, president of the International Congress for Microbiology, said he expected another influenza epidemic if war is widespread and lasts long. And in the offices of the Surgeon General of the U.S. Army it is recalled that the respiratory diseases, influenza and pneumonia, presented the biggest health problem in the last war—aside from battle casualties.

"Whenever you bring a great number of men together, especially when many of them have been living in uncrowded, rural districts, you have this problem of the respiratory diseases," an army doctor explained.

The men from the country, though they may be healthy, strapping fellows, cannot withstand the massive doses of germs to which they have not been exposed before. Men from crowded sections of large cities have had more chance to build up immunity to disease germs, because of more frequent contact with small doses of them.

Serum for Pneumonia

While there is as yet no specific weapon against influenza, medical scientists have advanced far in their war against its frequent and dangerous sequel, pneumonia. Serum treatment for pneumonia, which has saved thousands of lives in recent years, was only beginning to be used during the World War. At the beginning of that war only about four of the 32 types of pneumonia germs were known. The entire 32 were not known and classified until after 1927. Each of these types is a separate disease-causing germ, and while the symptoms of the sickness they produce are about the same, serum for speeding patients to recovery must be made for each type of germ. Sera for all the types are now available and the production of these has been improved so as to make them more effective remedies for the disease.

Besides having serum for treating pneumonia, medical scientists have another brand-new and promising weapon, the famous sulfapyridine. Only a little over a year old, this chemical is credited with already having saved many pneu-

monia-threatened lives. Since it is much less expensive than serum to manufacture, and much easier to use, it may play an important part in reducing the danger of pneumonia in war or peace.

Best way of fighting any disease, of course, is by making men immune to it. For a few plagues, such as smallpox, typhoid fever, diphtheria and even yellow fever, this can now be done by vaccination or inoculation. Anti-pneumonia vaccine has also been developed. Many thousands of men and boys in C.C.C. camps in this country have been given this vaccine, apparently with good results, judging by the relatively few cases of pneumonia that have developed. Large-scale trials of the vaccine on civilians, who may be more exposed to the disease than the C.C.C. boys, are now planned. If American soldiers are sent into another war, it is possible that they may go vaccinated against pneumonia as well as against typhoid fever and smallpox, though Army officials have as yet made no decision on the use of anti-pneumonia vaccine.

Typhus fever is another of the deadly and loathesome plagues that soldiers of former wars have faced. It is quite a different ailment from the similar-sound-



MAGGOTS

A development of the World War was the discovery that maggots bred under germ-free conditions could be used to treat wounds. Now a substance, allantoin, has been found to take their place.



FOR THE MAIMED

Artificial limbs for those whose legs and arms are shot away are being made to fit better and prove more useful than ever before.

ing typhoid fever, and its germs are carried by lice. American soldiers in the last war were troubled enough by "cooties," but fortunately not many of them were in danger of getting typhus. Delousing measures were used to keep the "cootie" population down, and since the men were free of typhus germs to start with, the "cooties" could not spread them.

Not so fortunate were the soldiers and civilians of other nations. In Poland and Russia and other Eastern European countries, the disease is endemic—that is, there are always some cases among the population. During the World War this sickness became a very real plague, ravaging troops and civilian populations alike in these countries.

The men in the laboratories did not cease warring on typhus when the Armistice was signed, but kept on searching for a way to make a vaccine against the disease. Ironically, two Polish scientists were on the verge of accomplishing this at the outbreak of the present war. The very week that German troops invaded their country, one of them, Prof. Ludwig Anigstein of Warsaw, was reporting his success in vaccinating guinea pigs at the International Congress for Microbiology meeting in New York City. American scientists also believe they have an effective vaccine, and if the war continues for any length of time, they

will have a tragic laboratory of human guinea pigs in which to test its value.

More cheerful to contemplate are the prospects of lives being saved from germs that get into wounds—either on the battlefields or on city streets when planes rain bombs on civilian populations. Gas gangrene, horrible and rapidly fatal infection, was a frightful scourge during the World War. Great numbers of the men wounded in trench warfare developed this infection and many of the wounded died of it. The germs form gas in the wounded tissues and also produce a very potent poison which enters the blood stream and spreads throughout the body. While the infection is essentially a war danger, cases occur in civil life in accidents in which limbs are crushed and there is opportunity for the germs to get in—for example, in cases of persons run over by automobiles in city streets.

Surgeons during the war treated the condition by cutting away as much tissue around the wound as possible and by treatment with antiseptic solution. If this did not help, amputation was resorted to in the effort to save life. Antitoxic serum has also been developed for fighting this deadly infection.

Newest weapon against this deadly gas gangrene is that medical wonder, sulfanilamide. This chemical remedy has, so far as is known, only been used in peace-time gas gangrene infections, but it is likely to play an important part in saving lives and limbs during the war. The speed with which the infection is brought under control by this treatment is "often startling," report doctors who have used it in peace-time practice.

A Preventive

They declare that all patients who have had crushing injuries should be given prophylactic doses of sulfanilamide as soon as they are seen, without waiting to see whether gas gangrene will set in, and such procedure may become part of the routine treatment of wounded in field hospitals and dressing stations and at city emergency stations for treatment of civilians wounded during air raids.

Another chemical that may prove highly valuable in treating infected war wounds is the substance called urea. A British scientist has already called his colleagues' attention to this remedy which was one of the few benefits derived from the World War. An American surgeon, Dr. William S. Baer, made the original discovery. He noticed that when

men wounded in battle had been lying out on the ground unattended for some time, their wounds commonly became infested with the larvae of certain kinds of flies. Strangely, these men whose wounds were literally crawling with maggots did not develop infections and recovered, although men whose wounds were promptly treated with the best aseptic technic to keep germs out of the wounds nevertheless developed infections. The maggots seemed to be especially helpful in cases where there was danger of osteomyelitis, or bone inflammation.

Back home after the war, Dr. Baer, who was an orthopedic surgeon seeing many cases of this bone inflammation in which the wounds would not heal under any kind of treatment, remembered the soldiers' wounds and their maggots. He decided to try the effects of maggots in peace-time wounds. It took courage to put crawling fly maggots, ordinarily associated with filth and germs, into patients' open wounds, but Dr. Baer did it, and found the treatment helped his patients to recover.

Unfortunately, he died before the action of the maggots had been explained. Meanwhile, other scientists had become interested. The Department of Agriculture had helped Dr. Baer by supplying him with maggots bred under sanitary conditions so that they were free of germs when put into the wounds. Scientists there continued working on the problem and discovered that the secret of the maggots' healing power lay in a substance they produced, called allantoin.

This chemical was finally synthesized and made available to surgeons in the form of a salve to be put on wounds instead of live maggots. It worked just as well. Further work led to the discovery that part of the allantoin molecule can be split off to form the chemical, urea, and that a two per cent water solution of this substance is as effective as allantoin or fly maggots. The advantage of using urea is that it is much cheaper to make than allantoin.

Blood Banks

Refrigerated blood—quarts and quarts of it—is another new, life-saving weapon that Army surgeons may take to the front with them, and that hospitals will have ready for civilians wounded in air raids. The blood will be examined to make sure it contains no dangerous germs, typed, and transported by army trucks in specially constructed boxes

that keep it at a temperature just above freezing. It will be ready for emergency use with no preliminary preparation other than warming it. Blood for this purpose can be obtained from civilians, from slightly wounded and convalescent soldiers, and from the dead. Such "blood banks," originally developed for saving lives of mothers threatened by childbirth hemorrhage and victims of peacetime accidents, proved their war value in Spain. French and British physicians months ago laid plans for blood banks that would withstand war-time runs, and other nations have probably followed suit. The feat of drawing life from the dead by saving their blood for transfusion into patients who would otherwise bleed to death was first accomplished by Prof. Serge Judine of the Institute Sklifasovskiy, Moscow's great emergency hospital.

The automobile and the air liners of peacetime have contributed their gruesome bit to medical knowledge which will be turned to war-time use. Automobile accident victims with broken legs and backs who died before they reached the hospital because they were improperly transported have been the subject of many a medical sermon in recent years.

A patient with a broken neck or back should be carried flat on a stretcher in an ambulance or truck. He should never be jack-knifed into the back seat of an

automobile, even if there must otherwise be some delay in getting him to the hospital. In spite of the delay, his chances of coming out alive are better.

Broken legs and arms should be splinted before the patient is moved from the scene of the accident, to keep the broken ends of the bones from damaging the tissues so badly that the leg or arm may be beyond repair and have to be amputated. It may not be possible to splint an arm or leg under shellfire, but the importance of splinting before moving is so well recognized that U.S. Army first aid equipment now includes splints for legs and arms.

War use of airplanes as ambulances for evacuation of the wounded has been much discussed, but except in exceptional cases such air ambulances are not likely to be used. Difficulties of landing planes anywhere near a battlefield and the chances of the air ambulances being mistaken for observation or military planes and consequently being shot down are reasons why these are considered impractical.

CHEMISTRY

Robot Chemist Analyzes Solutions And Draws Curve

A CHEMICAL robot that can analyze complex chemical substances faster and better than trained scientists was described at the annual Michigan-Ohio regional meeting of the American Chemical Society at Michigan State College.

Only a routine assistant is needed to help the robot make intricate quantitative chemical analyses, for the only care it requires is to be "fed" chemical solutions. Not only is the robot a super chemist, but it can write, too, drawing its results on a chart for later study by scientists.

Scientists H. A. Robinson, R. H. Briggs, R. W. Cermak and R. H. Boundy, all of the Dow Chemical Company, described the new machine which, to scientists, is known as an automatic electrometric titration apparatus.

Electrometric titration is a common enough technique of chemical analysis. Usually it is done by hand by adding small amounts of reagents to a solution and watching the voltage established across the apparatus as the solution's current flows. Each new voltage gives a

single point on a curve of final results. The whole process is time-consuming.

The robot duplicates these acts, adding reagents in small amounts and recording the voltage on a graph automatically after each addition. Main advantage of the new apparatus is to remove the human element in the titration method. Little bumps on the curves take on new meaning when it is certain that there are no human mistakes and that the curves are made on apparatus which will duplicate results time after time.

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Science News Letter, November 11, 1939

PSYCHOLOGY

Sophomores Pessimistic About Americans' Ability

A GLOOMY view of democracy is held by sophomores at the University of California.

A majority of the 350 sophomores questioned (62%) believe that about one American out of three is incapable of participating in a thoroughly workable democracy. Some are even more pessimistic. Half the public were declared incapable by 16% of the sophomores and 11% think three-fourths of the population unworthy of the democratic form of government.

Not so gloomy are professional psychologists recently gathered in Berkeley for a meeting of the American Psychological Association. Most of these authorities on the human mind (80%) agreed that nine out of ten Americans are quite capable of taking part in running the democracy.

Science News Letter, November 11, 1939

METEOROLOGY

Dry Year in Prospect For Sunny California

CALIFORNIA faces the prospect of less-than-average precipitation for the 1939-40 rainy season, the studies of Prof. George F. McEwen of the Scripps Institution of Oceanography indicate. Prof. McEwen's long-range forecasts are based on correlations of ocean temperatures and other factors with observed weather conditions several months later.

By regions, rainfall indications for 1939-40 are 11 inches for the south coast, as compared with a mean of 13.1 inches for the years 1916-39; for the Santa Barbara region, 13 inches as compared with a mean of 16.6; for the Hetch Hetchy val-

ley, 21 inches as compared with 31.1 inches. The expected precipitation for the north coast is 38 inches, as compared with a mean of 51 inches from 1919 to date.

Science News Letter, November 11, 1939



Tree Preparedness

PSYCHOLOGY

Public Differs With Experts On How To Keep Out of War

Poll Conducted by Psychologists of 150 Social Scientists and 1,000 of Public Shows Differences

First of occasional articles prepared by the Society for the Psychological Study of Social Issues for distribution by Science Service. The SPSSI, comprising psychologists associated with the American Psychological Association who are doing active research on problems of social interest, emphasizes that it presents facts resulting from research conducted by competent psychologists, and that it will not take sides on controversial issues.

ON THE question of keeping America out of war, the general public opinion differs quite markedly from the ideas of men who have spent years studying the problem of war.

This is shown in a survey of American public opinion, made before the outbreak of the present war, conducted by a committee of the Society for the Psychological Study of Social Issues, and announced through Science Service.

This committee, composed of Professors Ross Stagner of Dartmouth College, J. F. Brown of the University of Kansas, Ralph H. Grundlach of the University of Washington, and Ralph K. White of Cornell University, polled 150 social scientists and over 1000 people scattered throughout the country.

The experts were evenly divided on the question of increasing the army and navy, 39% approved an increase, 39% disapproved, and 19% were doubtful. The sample of the American public voted approval by more than 3 to 1. Business men were more favorably disposed toward an increase in military and naval strength and salesmen, clerks, and both skilled and unskilled workers were almost equally in favor of an increase. Farmers, professional men, and teachers were least favorably disposed of all the lay groups, although the percentage of people desiring an increase among these groups was higher than among the experts.

People were asked to say whether they approved or disapproved of the following statement pertaining to a desirable foreign policy: "Make it perfectly clear that America is ready to defend herself—that anyone who attacks our honor or vital interests must count on fighting it to a finish." Such a statement received slight approval among the experts but strong approval from the general public. Again business men, skilled and unskilled workers disagreed most of all with the opinions of social scientists. Closer agreement was observed between teachers and professional men on the one hand and the social scientists on the other.

When the question of curtailing military protection for American citizens and for trade and investments abroad was raised, the experts favored this policy by a slight majority. The largest number of "no" votes came from business men, followed by salesmen, clerks, and professional men. Teachers, workers, and farmers were even more inclined to accept this type of neutrality than were the experts.

This committee, which is preparing a book on the psychology of war, concludes from the responses to these and other questions that either the American people in general are not acquainted with expert opinion or they do not wish to follow it. Business men, salesmen, and clerks differ most often from the experts. Farmers and workers are intermediate. Teachers and professional men come nearest to the views held by social scientists who have made intensive studies of war.

Science News Letter, November 11, 1939

More than half of the earth's people live on five per cent of the land.

BEFORE heavy fighting begins, military surgeons and nurses get ready for the repair of the inevitable human wreckage that will come streaming back in the endless lines of ambulances. They lay out carloads of bandages, prepare thousands of beds. Healing and rehabilitation are planned for even before the wounds are inflicted.

In like manner, German foresters, if they have not forgotten the thoroughness and foresight for which they have long been the objects of the world's unenvious admiration, should by now have begun preparations for the reforestation of the valleys of the Saar and the upper Moselle, which are marked for denudation of the most dreadful sort when the big guns break into their full chorus of destruction.

Everyone knows what a major battle does to a forest; pictures from the World War showed how the trees were blasted into tortured splinters and snags, like a Doré illustration for Dante's Inferno. The French had a long job, reforesting these devastated regions. Since the present war is starting on German soil, it will be up to the German foresters this time.

Science News Letter, November 11, 1939

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RADIO

Airplane Passengers See Their Own Plane in Flight

By WATSON DAVIS

SEATED comfortably in an airplane circling for a landing, I watched that airplane flying in the air. As the United mainliner came in for a landing on the runway of Mayor LaGuardia's just dedicated North Beach Airport, with one glance through a window I could see the ground rushing up, with another glance at a magic mirror, I saw the airplane gliding downward.

The scientific wonder of television focused on a modern air transport carrying a television receiver made possible this Einsteinian sight. It was as though I had a giant telescope trained on a gigantic mirror which reflected all outdoors.

The RCA television set mounted in the airliner as conveniently as in a drawing room had been entertaining us with news and travel films. Then its screen showed the North Beach airport televised by NBC's mobile unit piping its signals to Station W2XBS, which sprayed them into space including our airplane. Soon a tiny airplane appeared on the screen. We were to watch ourselves land. A new sensation: To feel the jolt of wheels touching the runway just when you see them do it. Television and aviation pioneered another "first."

Television, infant entertainer, farsighted prodigy, may play a role in war. When that telereceiver-carrying United Air Lines plane climbed some four miles over Washington carrying military and government officials to see NBC television broadcast from New York some 200 miles away, it suggested a reverse situation if war becomes even more scientific and mechanized than now. If the television transmitter were in the plane, riding high to the rear of enemy lines,



PLANE PASSENGERS SEE LANDING

if the receiver were at GHQ, generals might see with their own eyes, thanks to television, what the enemy is doing. Not an immediate prospect. Difficulties: Lack of extraordinary detail as on aerial photograph. The picture is fleeting and can't be studied. The cost and weight of television cameras and transmitters are great.

Science News Letter, November 11, 1939

MEDICINE

New Operation Relieves Severe Heart Attacks

A NEW OPERATION which relieves attacks of the dreaded, excruciatingly painful heart trouble called angina pectoris has been devised by Dr. Rupert B. Raney of Los Angeles. The operation is called a "hitherto undescribed surgical procedure" in Dr. Raney's report. (*Journal, American Medical Association*, Oct. 28)

The operation does not merely relieve

the pain of these heart attacks. It prevents the spasm of the heart's blood vessels which occurs during the attacks. Other operations for this kind of heart ailment relieve the pain but, Dr. Raney says, they are merely palliative and "do not attack the patient's real trouble."

His operation has given "complete relief" to eleven patients who had previously suffered from "desperate attacks of angina pectoris." One of the patients was a 72-year-old man whose heart had already been damaged by high blood pressure. Others suffered from conditions like high blood pressure and diabetes in addition to the angina pectoris. All eleven patients survived the operation and have had no further attacks of angina. In some cases it has been nearly two years since the operation was performed.

This operation, like others previously devised, cuts nerves running to the heart, but the difference between this and other operations is in the particular nerves cut.

Science News Letter, November 11, 1939

Many Japanese students in California are at least six inches taller than their parents.

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RADIO

E. C. Whittier, of the U. S. Bureau of Dairy Industry, will discuss the possibilities of making wool from milk, as the guest scientist on "Adventures in Science" with Watson Davis, director of Science Service, over the coast to coast network of the Columbia Broadcasting System, Monday, November 20, 4:30 p.m., EST, 3:30 CST, 2:30 MST, 1:30 PST. Listen in on your local station. Listen in each Monday.

PUBLIC HEALTH

New Medical Service Plan Would Give Treatment

Health Departments Should Not Confine Their Efforts To Preventing Sickness in Opinion of Careful Expert

A FAR-REACHING plan for "American democratic medicine," under which health departments would be responsible for both treating and preventing sickness, presented by Dr. Edward S. Godfrey, Jr., New York State Health Commissioner, in his presidential address before the American Public Health Association at Pittsburgh, has created a tremendous stir at the meeting.

It came as an answer to the challenge recently made in a public address by Dr. Nathan B. Van Eetten, president-elect of the American Medical Association: Does America want Hitler medicine or Stalin medicine or some other foreign system of medicine?

When public opinion in America demands of its lawmakers a reform or change in an existing system, as it now seems to be demanding a change in the medical and health system, the change becomes the law of the land only after extensive public hearings and debates in the legislative body. This is the democratic, American system, Dr. Godfrey pointed out.

"Anything, therefore, which becomes law after being duly considered and enacted by an American legislative body, provided it is constitutional and legal, is American and is democratic. Name calling cannot make it otherwise," Dr. Godfrey declared.

Public health medicine, preventive as well as curative, delivered without distinction as to race, creed, occupation or income, for "no less than three-thirds of the people," is Dr. Godfrey's plan for America.

The present fee-for-service system prevents this plan for public health medicine being carried out, not only because the patient cannot afford to pay a fee for all his health needs but because the private physician treating a patient for one ailment would be accused of seeking business or chiseling if he suggested that the patient or his family needed treatment for another ailment or to prevent his getting sick again.

Under the public health medicine

plan, Dr. Godfrey insisted, the quality of service and the compensation to the doctor can be as good as, if not better than, under the present system.

A tremendous impetus has been given the movement for more and better medical and health care for Americans by Dr. Godfrey's daring proposals.

Revolutionary as is his proposal to put all medical and health matters under health department responsibility, 90% of the Association members are ready to back him up, in the opinion of a former president, Prof. C.-E. A. Winslow, of Yale University. Prof. Winslow said Dr. Godfrey laid down a policy but not a blue-print for working out a health program, and that the Wagner health bill also was policy-making rather than a specific plan for procedure throughout the nation.

Members knowing Dr. Godfrey as a deliberate careful thinker, slow to speak, and with wide knowledge and experience in public health administration, were amazed at the stand he took, but many of them were delighted. The feeling is that many health workers will be stirred to greater enthusiasm for the new movement in medical and health affairs because it was Dr. Godfrey, careful, deliberate and sound, who made such far-reaching proposals for solving the problem of delivering health to "three-thirds of the nation."

Two other former presidents of the Association injected a word of caution. Dr. Milton J. Rosenau, of the University of North Carolina, speaking immediately after Dr. Godfrey, predicted the coming of socialized medicine in America, but far in the future. He believes that it will come through the medical and not the public health profession, and asserted that "medicine should be master in its own mansion."

Dr. Godfrey's proposal is an ideal goal to be worked for, but it should be gone after one step at a time, in the opinion of Dr. Louis I. Dublin, another former president of the Association and third vice-president and statistician of the Metropolitan Life Insurance Com-

pany. The danger, Dr. Dublin said, is of reaching the goal and setting up the new system of medical and health care before there are enough well-trained and competent men and women to administer the plan and carry out its provisions.

Science News Letter, November 11, 1939

MEDICINE

New Light on Fever Cure Of Brain Syphilis

NEW LIGHT on fever treatment of paresis, the mental disorder resulting from syphilis, has been obtained through blood studies just reported by Drs. Harold E. Himwich, Karl M. Bowman, W. Goldfarb and Joseph F. Fazekas, of New York (*Science*).

During the fever treatment, the brain is much more active, as shown by the increased amount of oxygen consumed. The oxygen consumption was determined by measuring the amounts found in blood taken from the artery supplying the brain and from the internal jugular vein carrying blood away from the brain.

What effect this heightened brain activity during fever has on syphilis is not yet known, but Dr. Himwich and associates state it "warrants further investigation."

The studies were carried on at Albany, N. Y., Medical College, Bellevue Hospital and New York University Medical College in New York.

Science News Letter, November 11, 1939

PHYSIOLOGY

Electricity Changes Oyster's Heart Action

ELECTRICITY was used to change the mechanical and electrical behavior of oyster hearts, in experiments reported by Prof. Ivon R. Taylor of Brown University and Dr. Edward M. Walzl of the Johns Hopkins University. When the direct current was turned on, the contractions of the heart were less pronounced and briefer than usual, and the relaxations were more complete; directly after the current was broken, the heart muscles contracted to a greater degree than normal. The electrical waves generated by the hearts were altered in size and form during the passage of the applied direct current.

In many ways the oyster heart shows a behavior that is different from that of vertebrate hearts.

Science News Letter, November 11, 1939

Guinea pigs grunt in somewhat pig-like fashion.

•First Glances at New Books

Aeronautics

FROM CRATE TO CLIPPER, With Captain Musick, Pioneer Pilot—William Stephen Grooch—*Longmans, Green*, 243 p., \$2. The thrilling story of a famous airline pilot as told by his friend and fellow aviator.

Science News Letter, November 11, 1939

Agriculture

SUCCESSFUL FARMING IN THE SOUTH—Paul W. Chapman—*Turner E. Smith*, 348 p., \$1.04. Agricultural reconstruction for the South must begin with the boys and girls who are going to be tomorrow's farmers. This simply written but comprehensive textbook can be counted on to serve as fertilizer in the right place—the young people's minds.

Science News Letter, November 11, 1939

Chemistry

APPLIED CHEMISTRY—Sherman R. Wilson and Mary R. Mullins—*Holt*, 530 p., \$1.72. A high school text designed for students other than those taking the college preparatory course. Adults who wish to learn more of the chemical world around them will find use for this book.

Science News Letter, November 11, 1939

Documentation

A PAMPHLET ABOUT PAMPHLETS—Lester Condit—*Univ. of Chicago Press*, 104 p., 75c. What to collect and preserve, how to arrange and file pamphlets. A bibliography and a list of manufacturers and dealers in equipment needed in the handling of pamphlets will be useful to librarians.

Science News Letter, November 11, 1939

Genetics

SUGGESTIONS FOR TEACHING SELECTED MATERIAL FROM THE FIELD OF GENETICS—Anita D. Laton, Edna W. Bailey, Joseph Schwab and Gertrude W. Diedrich—*Teachers College, Columbia Univ.*, 66 p., 50c., (Monograph No. I, Bureau of Educational Research in Science).

Science News Letter, November 11, 1939

Meteorology

METEOROLOGICAL RESULTS OF THE BYRD ANTARCTIC EXPEDITIONS 1928-30, 1933-35: TABLES—G. Grimmering and W. C. Haines—*Govt. Print. Off.* 277 p., \$1. (Monthly Weather Review, Supplement, No. 41.)

Science News Letter, November 11, 1939

General Science

LOBSCOWS, The Clean-up of an Editorial Kitchen—Ivor Griffith—*International Printing Co.*, 548 p., \$3. The literary autobiography of the dean of the

Philadelphia College of Pharmacy and Science, editor of the *American Journal of Pharmacy*, etc. Its title comes from the merry Welsh dish that is a compromise between soup and stew, and in the book you will find both scientific meat and drink, well worth imbibing.

Science News Letter, November 11, 1939

Biology

STIMULATIVE EFFECT OF SHORT LENGTHS OF THE ULTRAVIOLET ON THE ALGA *STICHOCOCCUS BACILLARIS*—Florence E. Meier—*Smithsonian Institution*, 19 p., 4 pl. 15c.

Science News Letter, November 11, 1939

Chemistry—Technology

STANDARD CHEMICAL AND TECHNICAL DICTIONARY—H. Bennett—*Chemical Pub. Co.*, 638 p., \$10. A condensed technical word book containing over 25,000 definitions for students, writers, engineers and scientists.

Science News Letter, November 11, 1939

Ethnology

EARLY FIRE-MAKING METHODS AND DEVICES—Warren N. Watson—*Author*, 608 *Woodward Building, Washington, D. C.*, 75 p., paper, \$1, cloth, \$1.50. Detailed description, with diagrams and photographs, of man's varied experiences with fire-making. A useful chapter for campers gives suggestions and precautions for fire making under adverse conditions.

Science News Letter, November 11, 1939

Cartography

CATALOGUE OF TOPOGRAPHIC AND GEOLOGIC MAPS OF VIRGINIA—Joseph K. Roberts and Robert O. Bloomer—*Dietz Press*, 246 p., \$3.

Science News Letter, November 11, 1939

Chemistry

DISCOVERY OF THE ELEMENTS (4th ed.)—Mary Elvira Weeks—*Journal of Chemical Education*, 470 p., \$3.50. Price change.

Science News Letter, November 11, 1939

Ethnology

ETHNOGRAPHY OF THE FOX INDIANS—William Jones—*Govt. Print. Off.*, 156 p., 25 c. (Bureau of Amer. Ethnology, Bull. 125). A colorful figure in American anthropology was William Jones, a Harvard graduate who was part Fox Indian and spent his early childhood on the reservation. His untimely death in 1909 during a Philippine anthropological expedition left these notes on his own tribe unpublished.

Science News Letter, November 11, 1939

Physics

MATTER AND LIGHT, The New Physics—Louis de Broglie—*Norton*, 300 p., \$3.50. The French Nobel Prize winner in physics and the first man to offer modern physics a satisfactory solution of its dilemma over wave and corpuscular theories here presents in simple, easy-to-read style the background and concepts underlying the new wave mechanics. Based on a book written in French in 1937, the new English translation has been brought up to date.

Science News Letter, November 11, 1939

Chemistry

A HISTORY OF CHEMISTRY (3rd ed.)—F. J. Moore; William T. Hall, rev.—*McGraw-Hill*, 447 p., \$3. Attention is directed to the living chemistry and chemists of today, in contrast to the authors' previous attempt to cover only the past.

Science News Letter, November 11, 1939

Geography

MONTANA, A State Guide Book—Federal Writers' Project—*Viking*, 442 p., \$2.50. Seeing America should become a more discriminating pastime, now that guide books of this caliber are being turned out for each state. This one provides the expected information on tours, maps, sights and history, and also manages to stress features that make Montana different. There is even a glossary to define words like cayuse and Chinook.

Science News Letter, November 11, 1939

Geography

AUSTRALIA: Her Heritage—Her Future—Paul McGuire—*Stokes*, 349 p., \$3.50. One of the most readable and complete travel books of the year. Mr. McGuire says, "The Australian culture is something new in the world," and he proves it.

Science News Letter, November 11, 1939

Agriculture

AMONG THE DANISH FARMERS—E. J. Perry—*Interstate, Danville, Ill.*, 191 p., \$1.60. Any one interested in the dairy industry will want to read this book.

Science News Letter, November 11, 1939

Technology

PETROLEUM REFINING AND MANUFACTURING PROCESSES—Maxcine J. Japour—*Wetzel*, 310 p., \$5. The fundamentals of the refinery industry for oil men, and general knowledge of all petroleum products together with their applications in various industries.

Science News Letter, November 11, 1939